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ABSTRACT

The Department of Defense's (DOD) child development program has been identified as a model for the rest of the nation. To provide a benchmark cost estimate for Congress as it addresses child care issues, this report identifies the objectives of the military child development program, describes its operation, determines the full costs of DOD centers and the cost per child-hour for center-based care, and compares this cost with the full cost of comparable quality civilian child care. Only Air Force child development centers were included because the Air Force was the only service whose centers had all met the accreditation standards of the National Association for the Education of Young Children. Cost estimate data came from the Air Force and other government sources and child development centers. Cost estimates for civilian child care centers came from a study of 150 centers identified as providing high-quality care out of a sample of 401 centers in 4 states. The military program's primary objective is to help families balance competing demands of family and military responsibilities by providing high-quality child care at affordable rates. Caregivers have comprehensive child development training and receive salaries meeting prescribed minimum levels. The Air Force's cost of operating its centers was $81.4 million in fiscal year 1997, with an estimated cost per child-hour of $3.86. When adjusted for age distribution of the children, the costs of high-quality care in Air Force and civilian centers were not substantially different. (Five appendices include a description of the study methodology and cost comparisons.) (KB)

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Report to Congressional Requesters

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October 1999

CHILD CARE

How Do Military and Civilian Center Costs Compare?

PS 028259

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United States
General Accounting Office
Washington, D.C. 20548

Health, Education, and
Human Services Division

B-279806

October 14, 1999

The Honorable Trent Lott
Majority Leader
United States Senate

The Honorable Larry E. Craig
United States Senate

The Honorable Paul D. Coverdell
United States Senate

The demand for child care has increased dramatically in the past several decades as the number of mothers who work outside the home has grown. About 39 percent of women with children under the age of 6 were in the labor force in 1975; by March 1997, that figure had risen to 65 percent. Recognizing the importance of child care arrangements to all working families, the Congress streamlined federal programs in 1996 and increased funding in fiscal year 1997. Proposals have been introduced in the 106th Congress that address the affordability and quality of care. An important question underlying these proposals is how much high-quality child care costs.

Researchers and practitioners agree that high-quality child care settings are those in which a sufficient number of well-trained caregivers have positive interactions with children engaged in developmentally appropriate activities in safe environments. Both the Congress and the administration have praised the high quality of the child development program operated by the Department of Defense (DOD) and identified it as a model for the rest of the nation. Therefore, to provide a benchmark cost estimate for the Congress as it addresses these child care issues, you asked us to compare the cost of DOD's high-quality child development program with the cost of comparable care in the civilian market. As agreed with your offices, our objectives were to (1) identify the objectives of the military child development program and describe how it operates, (2) determine the full cost of operating DOD's U.S. child development centers and the cost per child-hour for center-based care, and (3) compare

the cost per child in DOD child development centers with the full cost of comparable quality child care in the civilian market.[1]

The military child development centers in our review included only those of the Air Force because it was the only service whose centers had all demonstrated high quality by meeting the accreditation standards of the National Association for the Education of Young Children (NAEYC).[2] Our cost estimate data for the Air Force centers came primarily from that service and other government sources. We also surveyed all Air Force child development centers to collect cost information that these government sources did not provide. Our cost estimates for civilian child care centers came from information provided by a research study[3] of 150 child care centers identified as providing high-quality care out of a sample of 401 centers in four states. Although not necessarily representative of all high-quality child care centers, these data are the only source of cost information available in an existing database. Appendix I provides additional details about our methodology and its limitations. We conducted our work between April 1998 and July 1999 in accordance with generally accepted government auditing standards.

Results in Brief

The primary objective of the military's child development program is to help military families balance the competing demands of family and military responsibilities by providing high-quality child care at affordable rates. DOD's child development program is implemented in each service

[1]The full cost estimate represents what it costs to operate a center when all costs are counted. This estimate includes both expended costs (total cash costs for daily operations) as well as other costs that the Air Force incurs but does not charge its centers. Expended costs include labor, staff education and training, food, supplies, equipment, and utilities. Air Force occupancy cost (annual value of center space) is imputed and counted only as a component of the full cost estimate. Also included in the full cost estimate are legal services and donations. Donations include services that volunteers provide the centers as well as donated goods and cash. Most of our full cost findings are expressed as the cost per child-hour, a measure that standardizes the cost of care across all types of centers, regardless of the number of children served or the hours of operation. Although we present our cost information in dollars and cents, our findings are estimates and not as accurate as this level of measurement implies. We refer to our cost findings as "complete" or "total" costs. We discuss data quality issues and other study limitations in app. I.

[2]NAEYC is the nation's largest association of early childhood professionals. Its purpose is to improve professional practice in early childhood care and education and increase public understanding of high-quality early childhood programs. NAEYC administers, through a voluntary system, an early childhood program accreditation process designed to set standards of excellence in early childhood education.

[3]Child care centers examined in Cost, Quality and Child Outcomes in Child Care Centers, ed. Suzanne W. Helburn (Denver: Economics Department, University of Colorado at Denver, 1995) were selected using a stratified random sample of 100 centers in each of four participating states with approximately equal representation of for-profit and nonprofit centers. The four participating states were California, Colorado, Connecticut, and North Carolina.

and provides several child care options, including center care, family child care, and before- and after-school programs. To promote a high-quality child development program, DOD requires that caregiver salaries meet certain prescribed minimum levels and that caregivers across all military services complete comprehensive child development training. In addition, DOD is required by law to maintain strict oversight of the safety standards of its child development settings through inspections. For example, the military's child development facilities are subject to four unannounced inspections a year. Funding for the program comes from parent fees as well as federal funds. Center caregiver salaries are paid primarily with parent fees. Federal funds go toward supplies, equipment, staff training costs, and some staff salaries. About $315 million in federal funds was obligated in fiscal year 1998 for DOD's child development program. DOD allocated approximately 80 percent of this amount to child development centers, 10 percent to family child care, and 10 percent to school-age care.

We estimated that the cost to the Air Force of operating its U.S. child development centers was approximately $81.4 million in fiscal year 1997, and the estimated cost per child-hour in these centers was $3.86. Labor costs—which include the salaries and benefits of child development center caregivers, directors, and support staff—composed 75 percent of the estimated cost, with the majority of labor costs representing the salaries and benefits of caregivers. The estimated cost per child-hour varied significantly for different age groups, from $5.41 for infants, to $4.28 for toddlers, to $3.24 for preschoolers. Child-hour costs are higher for younger children because quality standards for young children require more caregivers per child. Because almost half the children that the Air Force centers serve are under the age of 3, the centers' total costs and costs per child-hour are higher than if they served a smaller proportion of children under the age of 3.

When adjusted for age distribution of the children, the costs of high-quality care in Air Force and civilian centers were not substantially different. The adjustment reduced the Air Force cost per child-hour from $3.86 to $3.42, which is about 7 percent higher than the cost of care in civilian centers. Another factor that affects the overall cost per child-hour in Air Force centers is the caregiver compensation rate. Air Force centers pay their caregivers, on average, about $1.04 more per hour than comparable civilian centers do.

Background

Military and Civilian Child Care Settings

Both military and civilian child care services are supplied by providers operating in varied settings: with center care, a child is cared for in a nonresidential setting; with family child care, a child is cared for in the home of a provider; and with in-home care, a child is cared for in his or her own home. Child care centers—also known as child development centers in the military and nursery schools or preschools in the civilian sector—are nonresidential facilities. Military centers are located on military bases, while civilian centers are located in a variety of establishments, including churches, schools, businesses, and public agencies. Family child care is provided to a small number of unrelated children—typically fewer than six—in a provider's home. On military bases, the provider's home is military housing, and the provider is a military spouse. Civilian in-home care, such as that provided by au pairs or nannies, usually is provided for the children of the family that resides in the home. Military families may make arrangements independently for in-home care, but care by au pairs or nannies is not a service offered by the military child development program. In addition, some military and civilian centers and family child care homes also offer before- and after-school care.

Child Care Quality and Cost

Military and civilian child care providers are concerned about the quality of the child care experience. Researchers and professional associations have addressed the concern for quality by identifying two broad quality dimensions that pertain to all child care programs: children's daily interactions with their caregivers and structural features of the child care environment. Research has shown that child-caregiver interactions are most closely linked with children's development. Thus, child care is considered high-quality when caregivers are sensitive in responding to children's social behavior, participate in their play and learning activities, and guide their behavior in a positive manner. Structural features include group size, the number of children assigned to a team of caregivers in a classroom; child-to-staff ratio, the number of children per caregiver in a classroom; caregiver training; and the amount of floor space per child.[4] Along with adequate space, resilient playground surfaces and frequent staff and child hand washing are important health and safety structural features of high-quality child care. Another important structural feature,

[4]The child-to-staff ratios for various group sizes that NAEYC recommends for high-quality care are provided in app. II.

particularly for infants and toddlers, is low staff turnover, which researchers have tied to higher caregiver compensation. While structural features are not directly associated with children's development, they support and facilitate positive child-caregiver interactions.[5]

Standards established by professional associations address both the interactive and structural dimensions of child care quality. For example, both NAEYC's accreditation standards and the measures included in the Early Childhood Environment Rating Scale—a widely recognized tool used to assess the dimensions of quality in child care centers—address the quality of child-caregiver interactions as well as structural features of the child care environment.[6] A civilian center's compliance with NAEYC and other professional association standards is voluntary. For the military child development program, the military services elected to meet NAEYC standards as a supplement to DOD's requirements for child development and safety.[7] Thus, both DOD and NAEYC child care standards serve as a basis for DOD's child development program.

Using statistical measures for child-caregiver interactions and structural features of centers, as well as for numerous other variables, the Cost, Quality and Child Outcomes in Child Care Centers study examined the relationship among the quality of care, the cost of care, and the developmental progress of children in civilian center-based child care. Conducted by a team of economists and developmental psychologists from four universities, the study had as its fundamental objective explaining the quality of care prevalent in child care centers by looking at the operation of child care markets. Among a broad range of findings, the study produced three that were pertinent to our analysis:

[5]See Child Care: Use of Standards to Ensure High Quality Care (GAO/HEHS-98-223R, July 31, 1998) for more information on structural features of the child care environment. State child care standards, which are mandatory, primarily focus on the structural dimensions of care. The Maternal and Child Health Bureau, Public Health Service, U.S. Department of Health and Human Services, has developed guidelines for child health and safety, but compliance is voluntary.

[6]Child development researchers at the University of North Carolina developed the Early Childhood Environment Rating Scale for child care centers to use in self-assessment and for use in program evaluations and other types of research. This rating scale was used in the Cost, Quality and Child Outcomes in Child Care Centers study. See app. I for a more detailed discussion of the child care quality measures used in our study.

[7]Military child development centers are required to meet standards of operation necessary for accreditation by an appropriate national early childhood programs accrediting body.

- High-quality center-based child care costs more, but not a lot more, than other center-based care.[8]
- The quality of care in child care centers is related to several components of labor cost, including child-to-staff ratios, caregivers' wages, and caregivers' education and training.
- Most center-based care, especially of infants and toddlers, is mediocre at best.

The 401 centers in the study population were selected from lists of licensed child care facilities in the four participating states. Although the states were not selected randomly, the study team believed the child care centers in the four states to be representative of early care and education programs in the United States. Centers were selected for data collection within each state using a stratified random sample, with approximately equal representation of for-profit and nonprofit centers. Approximately 100 centers were selected in each state. Of the 401 centers, 25 were accredited by NAEYC.[9]

Quality Initiatives in the Military Child Development Program

To address reports of poor program quality and greater demand from its military personnel for child care services, DOD took steps to improve its child development program beginning in the 1980s. In a 1982 report, we highlighted several problems in the program, including unsafe child care facilities, a lack of DOD-wide program standards, and inadequate training of the program's caregivers.[10] In response to our report, DOD issued a Child Care Action Plan in 1983 that focused on improving DOD child development facilities by replacing or renovating them. It also addressed child-to-staff ratios and group sizes and set minimum DOD-wide standards for the operation of child development programs. The plan became the basis for DOD's child care policy for all its military services.

[8]The mean cost per child-hour for all 401 centers in the study sample was $2.31 in 1992 dollars, using the same cost components included in our cost estimate. When the 1992 dollars are adjusted for inflation to 1997 dollars, this cost estimate becomes $2.64. However, in addition to representing the total study sample of centers of varying quality, rather than a subsample of high-quality centers, this cost estimate differs from our estimate of the cost per child-hour in civilian high-quality centers in two important ways. First, this estimate was based on enrollment, rather than the number of children in attendance, as the measure of children served; second, this estimate excluded three for-profit child care centers operated at a place of business, which were considered outliers because they tend to have high-quality care as well as high costs. See app. I for additional details about our methodology.

[9]See table I.1 for a comparison of NAEYC standards and the measures used to select our subsample of high-quality centers.

[10]Military Child Care Programs: Progress Made, More Needed (GAO/FPCD-82-30, June 1, 1982).

In 1988, a series of congressional hearings on the military child development program considered several allegations of child abuse at military child development centers. The hearings led to the enactment of the Military Child Care Act (MCCA) of 1989, which mandated further changes in the military's center program.[11] Most of the provisions in the act were designed to improve the quality of care, either by improving the quality of the caregivers themselves or by ensuring that DOD standards are enforced. While most of the provisions in MCCA pertained to the military's child development centers, DOD issued guidance in the 1990s extending key provisions, such as inspections and training requirements, to family child care and school-age programs. In 1996, DOD took another step toward implementing servicewide quality standards by directing the military services to work toward accreditation by a national accrediting body for all child development centers.[12] As of June 1999, 89 percent of all military centers were accredited by NAEYC, while in the civilian sector, where accreditation is voluntary, approximately 6 percent were NAEYC-accredited.

DOD's Child Development Program Is Structured to Promote High-Quality, Affordable Care

According to DOD, its child development program has several objectives, including helping families balance military and family responsibilities; improving the family's economic well-being; and promoting children's cognitive, social, emotional, and physical development in all DOD's child development program settings. The military's program includes a range of child care options to accommodate the needs of working military personnel. While the Office of Family Policy (OFP) within the Office of the Secretary of Defense is responsible for developing overall child care policy, each military service issues its own regulations based on DOD policy and is responsible for operating its own program. OFP's child care policies are designed to promote a qualified and stable workforce and effectively enforce OFP's health and safety standards. The military's program is funded from a combination of federal appropriations and parent fees.

DOD Provides a Range of Child Care Options

To meet the needs of working military parents, who often work nonstandard hours, including shift work, nights, and weekends, DOD offers several child care arrangements. Specifically, the military services offer three principal forms of child care: child development centers, family child care, and before- and after-school programs ("school-age care"). Those

[11]The Military Child Care Act was revised and codified with the enactment of P.L. 104-106, section 568(a)(1), February 10, 1996. The provisions are currently found in sections 1791-1798 of title 10, USC.

[12]In addition, a 1998 White House memorandum directed all federal child care centers to be accredited by 2000.

eligible for the military's child development program include active duty military personnel, DOD civilian personnel, reservists on active duty or during inactive duty personnel training, and DOD contractors. First priority for DOD's child development program is given to employed parents who are active duty military and civilian personnel. The military assists families in finding at least one affordable child care option located either on or off the military base.

On-base centers were the original source of formalized child care on military bases and still serve as the principal component of the military's child development program. DOD's center-based care serves about 41 percent of all children participating in the military child development program in about 800 centers worldwide. DOD's child development centers vary in size, with the largest serving about 300 children. Most of the centers serve children aged 6 weeks to 5 years, with about 45 percent of the children under the age of 3. These centers typically operate from 6:00 a.m. to 6:30 p.m., 5 days a week. Many centers also offer a part-day preschool program and hourly care.

DOD's family child care programs generally are provided by the spouses of active duty military personnel living in government-owned or -leased housing. The military services serve about 35 percent of the children in the military's program in approximately 10,000 family child care homes in the United States and overseas. Family child care homes serve the same population as centers and provide services for sick and special needs children. In addition, they offer extended-hour and weekend care to accommodate military shift work and provide long-term care during military deployments. According to DOD officials, the flexible hours offered by family child care homes play an important role in providing child care during nontraditional hours and ensuring that parents are available for military duties on short notice.

All military services operate before- and after-school care programs for children aged 6 to 12. These programs, which offer care during holidays and summer vacation, are housed in various facilities, including child development centers, youth centers, and schools located on military installations. While in the past the military services have focused more on center and family child care, the services' child development program managers told us that they are now looking to either expand the school-age program or improve its quality. According to one service manager, one service is trying to do both.

OFP develops overall child development policies that pertain to centers, family child care, and school-age care. Each military service issues its own child care regulations that are based on DOD's policies, publishes instructions that pertain to the specific operations of its program, and administers its own program. While the services have the authority to issue child care regulations that are more restrictive than OFP policies, most military services' child development program managers told us that, generally, they do not make policies more restrictive because doing so might increase the cost of program operations. Military base officials make decisions about the operation and management of their particular child development programs. For example, officials determine whether to offer center-based care, family child care, or both and whether to expand existing programs or facilities. Center directors are responsible for the day-to-day operation of the centers, and a family child care director at each base oversees the family child care providers.

Improved Wages, Comprehensive Training Requirements, and Centralized Oversight Promote High-Quality Care

DOD requires that caregiver salaries meet certain prescribed minimum levels. In addition, OFP policies follow statutory requirements, which mandate specific training requirements and strict oversight of DOD's child care standards to enhance the quality of its child development program. While most if these requirements relate only to center-based care, DOD has comparable training requirements for caregivers in its centers, family child care homes, and school-age programs and carries out comparable inspections and similar background checks on all its caregivers. The services also offer resource and referral programs that provide parents with information on and referrals to all program components.

Improved Wages

In 1990, to provide military centers with a more qualified and stable workforce, DOD began paying center caregivers wages equivalent to those of other employees on the same military base with comparable training, seniority, and experience. Before this policy change, most military caregivers, like their civilian counterparts, were paid minimum wage and received few benefits. According to DOD officials, improved wages for center caregivers reduced turnover significantly and improved the quality of care by providing a more stable workforce. Staff turnover in the military program is now less than 40 percent annually, down from 300 percent on some military bases during the 1980s. According to OFP, current turnover is primarily the result of the "normal transfer" of military personnel, whose

spouses work in child care, from one military base to another.[13] Research has shown that higher staff salaries are associated with better-quality child development centers and that children who attend centers with lower staff turnover develop better social and language skills.

Comprehensive Training Requirements

DOD's training program for its newly hired caregivers in centers, family child care homes, and school-age programs requires that caregivers first complete orientation training before they are allowed to work directly with the children. Center and family child care providers must then complete 15 competency-based training modules within 18 months of their start date in order to be retained. OFP used nationally recognized competency standards to develop these modules, which focus on areas such as promoting a safe and healthy learning environment, advancing physical and intellectual competency, and supporting the social and emotional development of a child.[14] Caregivers for the school-age program must complete 36 hours of training based on these competency modules within the first year of work. Finally, all center, family, and school-age caregivers must attend 24 hours of training annually.[15] DOD's training requirements apply uniformly across all military services.

To improve the quality of training for caregivers, DOD is also required by law to ensure that each child development center employs a training and curriculum specialist, and DOD policy requires that the specialist be a professionally qualified early childhood educator. According to the director of OFP, the training and curriculum specialist provides training for center, family child care, and school-age providers. This person is responsible for developing the program's curriculum, promoting developmentally appropriate practices, instructing caregiver staff, and ensuring that the staff demonstrate skills as a result of the required training.

[13]During 1997, 27 percent of child care teachers and 39 percent of assistant teachers left their jobs in civilian centers. In that same year, one-fifth of civilian centers reported losing 50 percent or more of their teaching staff. See M. Whitebook and others, Worthy Work, Unlivable Wages: The National Child Care Staffing Study, 1988-1997 (Washington, D.C.: Center for the Child Care Workforce, 1998), p. 8.

[14]The Council for Early Childhood Professional Recognition operates the Child Development Associate National Credentialing Program. Focusing on the skills of early childhood and educational professionals, the program is designed to provide performance-based training and assessment of child care staff and family child care providers. The program represents a national effort to provide child development credentials to qualified caregivers who work with children from birth through age 5.

[15]In the civilian sector, fewer than half of the states require any training for newly hired center caregivers before they can begin working, and only 11 require similar training for family child care providers. Forty-four states require some kind of annual ongoing training for center caregivers, and 31 require annual ongoing training for family child care providers.

DOD has also initiated an "up or out" policy that links its training program to wages and promotion. DOD requires that center caregivers complete all training modules to remain employed and to receive the highest hourly wage available to DOD caregivers. Because family child care providers are independent contractors and generally set their own fees, their wages are not tied to training requirements. However, family child care providers can lose their contract to provide care if they do not complete the required and ongoing training.

Centralized Oversight

DOD strictly enforces its child care standards, such as those pertaining to safety issues. The law requires DOD to ensure that each center receives not fewer than four unannounced inspections a year. DOD's policy states that base personnel must conduct three of the four unannounced inspections, including at least one comprehensive health and sanitation inspection, one comprehensive fire and safety inspection, and one inspection led by a representative with authority to verify compliance with DOD child care standards. By law, a fourth inspection is carried out by representatives from a higher level of command, including a child development specialist. This fourth inspection includes a review of the center's curriculum, staff, and training; interviews with parents; and an assessment of the safety and appropriateness of indoor and outdoor equipment. In addition to these quarterly inspections, base personnel conduct monthly fire and food sanitation inspections at centers. If a center program is in compliance with DOD standards, DOD issues a certificate to operate. If the center is not in compliance and the violation is life-threatening, the base commander is required by law to take immediate action to correct the problem. In non-life-threatening cases, the violation must be corrected within 90 days or the center is closed until the violation is remedied.

DOD policy also requires that family child care homes be inspected quarterly. These unannounced inspections include fire, safety, health, and program inspections and ensure that child-to-staff ratios are maintained.[16] According to DOD and military service officials, these homes also are monitored monthly by a family child care director who works at the base. In addition, a multidisciplinary team that includes a child development specialist randomly inspects a representative sample of family child care homes. Because most family child care homes are located on military bases, they are not subject to state licensing requirements. However, as is the case with centers, they may be closed if the provider fails to promptly correct a violation.

[16]The size of the housing and age of the children determine the maximum number of children a provider may care for. Most providers may care for no more than six children, including their own, under the age of 8.

School-age programs, which are housed in child development centers, youth centers, schools, or other base facilities, are subject to at least one comprehensive and one unannounced inspection annually. These programs follow the same certification and remedy process for violations that centers do.

Federal Funds Help Pay for DOD's Program and Reduce Cost to Families

DOD's child development program is funded with a mix of federal funds and parent fees. Federal funds are provided directly to DOD's center, family child care, and school-age programs in the form of program subsidies. These funds are used to reduce the cost of child care for military families while improving the quality and availability of care. Increased demand for child care in the military over the last 2 decades has influenced how the military services spend their federal child care funding.

Federal funds pay for supplies, equipment, training, and some salaries for program staff, as well as for construction of new centers and maintenance of existing centers. These funds also pay for some specific costs associated with family child care. For example, DOD pays the cost of administering the program, which includes the salaries of the family child care directors. In addition, DOD provides indirect financial support through its resource lending libraries, which loan equipment such as cribs, high chairs, toys, books, and other supplies to these providers. These libraries, which also are paid for with federal funds, are located on most military bases with child development programs. A total of approximately $315 million in federal funds was obligated in fiscal year 1998 for military child development program operations, including $253 million for center-based care, $31 million for family child care, and $31 million for school-age programs (see table 1).

Table 1: Funding Obligated for DOD Child Development Program, Fiscal Year 1998

Dollars in millions

Appropriation type	Centers	Family child care	School-age care	Total
Air Force				
O&M[a]	$78.8	$6.4	$13.1	**$98.3**
MilCon[b]	17.0	[b]	[b]	**17.0**
Army				
O&M	68.6	10.1	8.4	**87.1**
MilCon	0	[b]	[b]	**0**
Navy/Navy Reserve				
O&M	62.6	11.5	7.3	**81.4**
MilCon	5.0	[b]	[b]	**5.0**
US Marine Corps				
O&M	13.8	2.5	2.6[c]	**18.9**
MilCon	7.0	[b]	[b]	**7.0**
Total	**$252.8**	**$30.5**	**$31.4**	**$314.7**

[a]Operation and maintenance (O&M) funds pay for child development program expenses such as the salaries and benefits of administrative and management personnel, supplies, equipment, and utilities.

[b]Military construction (MilCon) funds are appropriated for construction of new centers. Family child care providers reside in military housing, which is built with funds provided through congressional appropriations for government housing. School-age programs not located in child development centers can be located in youth centers, chapels, or dependent schools. Funding for these facilities is provided through different accounts.

[c]Includes funding for resource and referral services and oversight requirements.

Source: DOD Budget Exhibit, Child Development, School-Age Care, Family Centers, and Family Advocacy Program (PB-50), Jan. 1999.

Parent fees for center and school-age care pay for most caregiver wages in these two programs. These fees are based on a sliding scale that is determined according to family income in order to ensure that military personnel with the lowest incomes can afford child care. For example, military families in the lowest two income categories ($0 to $23,000 and $23,001 to $34,000) paid $38 to $62 per child per week for center care during the 1998-99 school year. Families with annual incomes over $55,000 paid $86 to $97 per child. (See table 2.) In addition, to help ensure adequate funding for military child care, federal law requires that DOD estimate total parent fees each year and provide at least as much in federal funds to child development centers. Because family child care providers

are considered independent contractors by military bases, these providers negotiate their fees directly with their customers.

Table 2: Parent Fees for Military Child Development Centers, School Year 1998-99

Total family income	Range of weekly fees authorized per child[a]	Optional high-cost range[b]
$0-23,000	$38-51	$43-54
23,001-34,000	48-62	53-66
34,001-44,000	59-74	65-79
44,001-55,000	72-84	78-90
55,000+	86-97	89-101

[a]Base commanders may authorize up to a 20-percent reduction of fees charged for each additional child from the same family.

[b]An optional high-cost range may be used in areas where it is necessary to pay higher wages to caregivers to compete in the local labor market.

Demand for child care has increased as a result of the increase in the number of military personnel with families, women in the military, and families with both parents in the military. In addition, the number of military spouses working outside the home increased from 30 percent in 1970 to 62 percent in 1997. In the early 1990s, DOD established a formula for estimating the need of its military families for child care services that was based on the number of children up to age 12 in military families whose parents worked outside the home and needed some type of child care. According to DOD, as of 1998, the military services were meeting about 56 percent of the projected need for child care. DOD's goal is to meet 80 percent by 2005. The director of OFP stated that DOD believes that the remaining 20 percent of military families with young children will not request child care either because the parents have alternating work schedules or because relatives care for their children.

During fiscal years 1985 through 1998, the military services built about 208 new centers to accommodate the child care needs of their military families. Military personnel generally show a preference for placing their children in centers, in part because center fees are generally lower than those charged by family child care providers. OFP's director told us that because of the high cost of constructing and operating child development centers, the high cost of caring for young children in these centers, and military parents' need for child care, most military services are trying to encourage the use of more family child care providers. For example, in the

1990s, the Army, Navy, and Marine Corps began offering subsidies in the form of direct cash payments to family child care providers so that they could charge fees comparable to center fees.[17] While the Marine Corps primarily target providers caring for infants and toddlers for subsidies, the Army and Navy offer subsidies to providers caring for children up to 5 years of age. The Army targets some of its subsidies to providers that are caring for special needs children and to those that are open extended hours. The Navy program manager told us that about half of Navy base commanders are offering family child care providers some amount of subsidy.

The High Proportion of Young Children in Air Force Centers Results in Higher Costs

Air Force child development centers are similar to centers in the other military services. They serve children in various age groups and are required to follow servicewide regulations designed to promote high-quality care. The estimated cost to the Air Force of operating its U.S. center program was about $81.4 million in fiscal year 1997, and the estimated cost per child-hour in Air Force centers was $3.86. Labor costs constituted three-fourths of this cost and differed depending on the age of the child, with significantly higher labor costs per child-hour for young children. In addition, a large proportion of the children at Air Force centers are in the youngest age groups, increasing the centers' total child care costs and cost per child-hour.

Centers' Labor Costs Constitute Majority of Air Force Estimated Cost

We estimated that the Air Force's total cost for operating its child development centers in the United States was approximately $81.4 million in fiscal year 1997, the most recent year for which data were available. Labor costs accounted for 75 percent of the total estimated cost. The cost of labor in Air Force centers includes costs for direct labor (caregivers) and indirect labor (all other staff). Salaries and benefits of caregivers accounted for about 52 percent of the total cost and 70 percent of labor costs. The Air Force employs about 1,800 caregivers in its U.S. centers and about 600 other employees, including directors, administrative staff, and cooks. Many of the centers have an assistant director as well as a director, and 19 percent also have annex directors that serve children in additional space outside the main center building. In addition, almost all centers have a training and curriculum specialist who provides services for center

[17]According to the chief of the Air Force Family Member Program, the Air Force's primary child care goal is to ensure that all parents that need child care have a child care option available to them. She said the Air Force does not have sufficient resources to increase the amount of care available and to reduce the cost of care. She believes that as more Air Force centers are built and, consequently, more center care is available, family child care providers will be forced to bring their fees more in line with center fees.

caregivers and management staff, and most centers have their own cooks who prepare breakfast and lunch for the children.[18]

About 64 percent of Air Force centers (93) are located in the United States, with the remaining located on military bases overseas.[19] U.S. centers are housed on military bases, in either newly constructed facilities built specifically for use as child development centers or buildings that were renovated to conform to DOD child care standards. We estimated that the cost of providing this space constitutes the second largest component of center cost—about 10 percent of the total cost. Supplies used by the center, such as classroom and administrative materials, were the third largest component, accounting for about 7 percent. (See table 3.)

Table 3: Estimated Full Cost of Air Force Child Development Centers, Fiscal Year 1997

Cost component	Total cost	Percentage of total cost
Labor (wages and benefits)		
Direct labor	$42,655,050	52.40
Indirect labor	18,763,938	23.05
Supplies	5,710,243	7.01
Food	3,939,678	4.84
Utilities	1,537,571	1.89
Equipment	582,165	0.72
Total expended costs	**$73,188,645**	**89.91**
Occupancy	7,936,879	9.75
Donations	237,281	0.29
Legal services	46,295	0.06
Noncash costs	**$8,220,455**	**10.10**
Full cost	**$81,409,100**	**100[a]**

[a]Percentages do not equal 100 because of rounding.

Source: GAO analysis of Air Force center data.

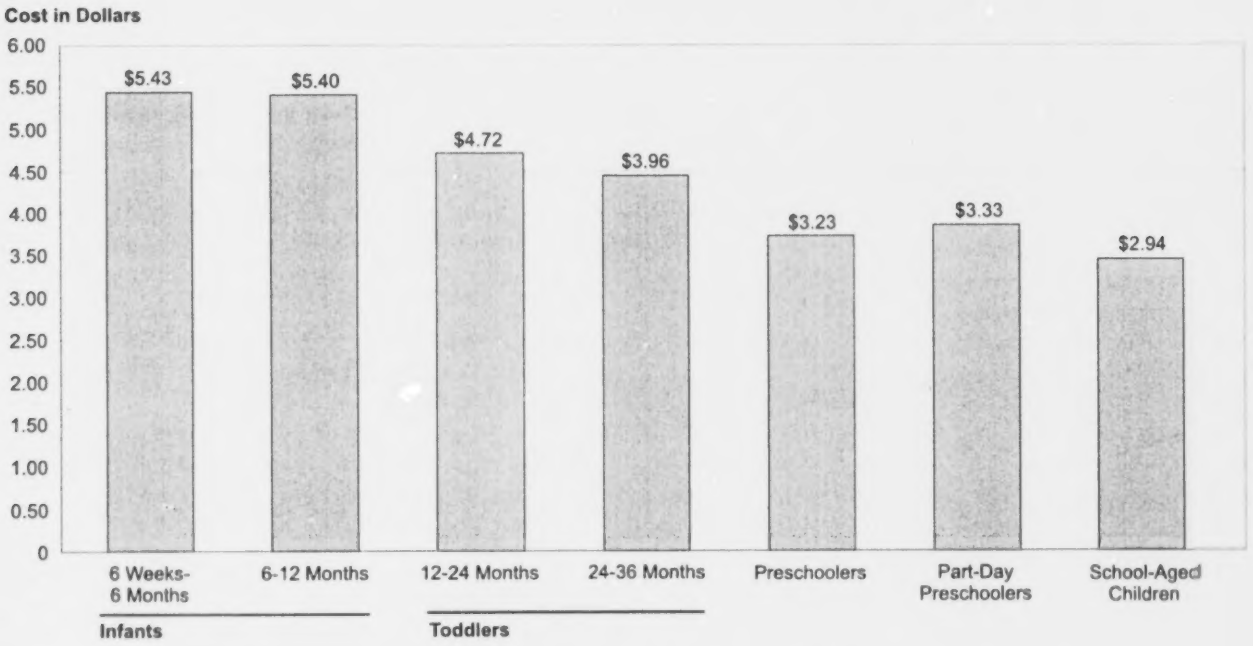
[18]Training and curriculum specialists in the Air Force also serve family child care providers and caregivers in the school-age program.

[19]The number of Air Force child development centers reported is based on the response to our survey.

Caring for Younger Children Increases Air Force Labor Costs per Child-Hour

The overall estimated cost per child-hour in Air Force centers was $3.86 in fiscal year 1997.[20] However, the cost varied for different age groups, with younger children costing more. For example, our estimated cost for children aged 6 to 12 months was about $5.40 per child-hour, compared with about $3.96 for toddlers aged 24 to 36 months and $3.23 for full-day preschoolers aged 3 to 5 years. (See fig. 1.)

Figure 1: Estimated Cost per Child-Hour at Air Force Centers, by Age Group, Fiscal Year 1997



Source: GAO analysis of Air Force center data.

The higher cost per child-hour is associated with the younger age groups because the child-to-staff ratios are lower for younger children, which

[20]The annual cost per child in an Air Force child development center in the United States was about $8,028 in fiscal year 1997.

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results in fewer children per caregiver.[21] Because centers have to hire more caregivers for younger children, the overall cost of labor per child-hour increases. Our analysis shows that in U.S. Air Force centers there are about three infants per caregiver, about four and one-half toddlers per caregiver, and about eight preschoolers per caregiver. Consequently, direct labor costs are higher per child-hour for the youngest children. (See app. III.) While more staff are assigned to the groups of younger children, the average caregiver compensation rate, about $11.20 per hour (including salaries and benefits), did not differ substantially across the various age groups.

Just as the other military services do, the Air Force employs a high percentage of young people with young children.[22] Because many of these families prefer center-based care, a high proportion of children served in Air Force centers are young children. Nearly half are under 3 years of age: 38 percent are toddlers and 10 percent are infants. Moreover, the cost of toddler care and the cost of preschooler care represent about the same proportion of the total cost of child care—about 42 percent—even though preschoolers constitute half the children. In addition, even though infants account for only 10 percent of all the children in Air Force centers, the cost of their care accounts for about 14 percent of the overall cost of child care. (See table 4.) Thus, the centers' total cost and their cost per child-hour are higher than if they served a smaller proportion of children under the age of 3.

[21]DOD's standards for child-to-staff ratios generally follow the NAEYC standards (see app. II). The child-to-staff ratios that we estimated are based on actual attendance reported by the centers in fiscal year 1997. According to the Air Force Child and Youth Services manager, the observed ratios exceed the DOD standards (fewer children per staff) because of the child absentee rate in the centers. She noted that, on average, about 12 percent of children are absent each day from Air Force centers because of Air Force personnel work schedules, illness, and family vacations. For example, many Air Force personnel often fly an average of 3 days a week and are home the rest of the week. In addition, military personnel receive regular "home leave" and may keep their children home during these days.

[22]Thirty-three percent of Air Force personnel are under the age of 26. In addition, 38 percent of employed Air Force spouses have children under the age of 2.

Table 4: Age Group Distribution and Cost of Care at Air Force Centers, Fiscal Year 1997

Children's age	Percentage of children	Percentage of total cost
Infants		
6 weeks-6 months	3.38	4.76
6-12 months	6.80	9.52
Subtotal	**10.18**	**14.28**
Toddlers		
12-24 months	16.20	19.81
24-36 months	22.05	22.67
Subtotal	**38.25**	**42.48**
Preschoolers		
3-5 years	46.62	39.07
Part-day preschoolers		
3-5 years	3.77	3.26
Subtotal	**50.39**	**42.33**
School-aged children		
6 years and over	1.19	.90
Total	**100**	**100**

Note: Percentages do not equal 100 because of rounding.

Source: GAO analysis of Air Force center data.

Cost per Child-Hour Is Similar in Air Force and Civilian Centers When Adjusted for Age Distribution

The hourly cost for care is about 20 percent higher in Air Force centers than in civilian centers of comparable quality because the Air Force's labor costs are higher. To a great extent, differences in the age distribution of the children served explained the difference in the centers' labor costs: a higher proportion of Air Force center children than of civilian center children are under the age of 3. When we adjusted the Air Force estimated cost to account for the difference in the children's age, the overall Air Force cost per child-hour decreased $3.86 to $3.42, which is about 7 percent higher than civilian centers' cost per child-hour. Air Force centers also compensate their caregivers more per hour than civilian centers.

The civilian centers' overall cost per child-hour was $3.19.[23] Table 5 breaks down the per-child-hour cost components—overall and for each age group—showing that the most costly component in both Air Force and civilian centers' overall cost per child-hour was the cost of labor. Labor

[23]The annual cost per child for the civilian child care centers was about $6,635 in fiscal year 1997.

represented 75 percent of the cost per child-hour in Air Force centers and 67 percent in civilian centers. The greatest difference between the individual cost components of the Air Force and civilian centers was also in the cost of labor—a difference of 78 cents per child-hour. The other cost components differed by less than half that amount.[24]

Table 5: Unadjusted Components of Costs per Child-Hour, by Age Group, Fiscal Year 1997

	Air Force					Civilian				
Cost component	**Infants**	**Toddlers**	**Preschoolers**	**School-aged children**	**Overall**	**Infants**	**Toddlers**	**Preschoolers**	**School-aged children**	**Overall**
Labor										
Salaries, wages, and benefits	$4.63	$3.32	$2.27	$2.04	$2.91	$3.95	$3.33	$1.88	$1.74	$2.12
Training costs	[a]	[a]	[a]	[a]	[a]	0.02	0.02	0.01	0.01	0.01
Subtotal	**$4.63**	**$3.32**	**$2.27**	**$2.04**	**$2.91**	**$3.97**	**$3.35**	**$1.89**	**$1.75**	**$2.13**
Occupancy[b]	0.38	0.37	0.38	0.42	0.38	0.46	0.46	0.36	0.38	0.38
Food	0	0.21	0.21	0.18	0.19	0	0.13	0.12	0.09	0.12
Other[c]	0.39	0.37	0.37	0.29	0.37	0.35	0.32	0.28	0.26	0.28
Total expended costs	**$5.40**	**$4.27**	**$3.23**	**$2.93**	**$3.85**	**$4.78**	**$4.26**	**$2.65**	**$2.48**	**$2.91**
Donations[d]	0.01	0.01	0.01	0.01	0.01	0.37	0.26	0.30	0.18	0.28
Total cost	**$5.41**	**$4.28**	**$3.24**	**$2.94**	**$3.86**	**$5.15**	**$4.52**	**$2.95**	**$2.66**	**$3.19**

[a]Air Force training costs include compensation of the training and curriculum specialist employed by each child development center. This cost was not broken out separately but is included in the Air Force cost of labor.

[b]This is the estimated cost of space. For Air Force child development centers, occupancy cost is imputed because centers are not actually charged for the cost of space. The cost of construction is assumed by Air Force bases and paid out of military construction funds. For civilian centers, occupancy cost may include the cost of utilities and repair and maintenance services.

[c]Includes cost of utilities, legal services, liability insurance, taxes, supplies, equipment, and payments to a parent company, if incurred.

[d]Donations include services that volunteers provide the child developmnent centers, as well as donated goods and cash.

Source: GAO analysis of Air Force and civilian center data. The fiscal year 1992 civilian center data were escalated to fiscal year 1997 using the Consumer Price Index.

[24]The 27-cent difference in the dollar value of donations the centers received was the second greatest component cost difference. Air Force centers received comparatively fewer donations, representing less than 1 percent of their overall cost per child-hour. However, donations constituted 9 percent of civilian centers' cost per child-hour and consisted mostly of center space and volunteers' services.

The difference in Air Force and civilian centers' labor costs is explained in large part by the difference in the age distributions of the children they serve. Most of a child care center's labor cost is determined by the number of caregivers employed. When centers follow professional standards that require fewer children per caregiver for young children, centers employ more staff to provide care for younger children than for older children. Thus, the higher the proportion of young children in the centers' care, the higher their overall labor costs per child-hour. As noted, the Air Force centers served a high proportion of young children. In fact, as table 6 shows, a higher percentage of Air Force center children (48 percent) than of civilian center children (15 percent) were under 3 years of age. Because Air Force centers served a higher proportion of young children than civilian centers did, their overall labor costs per child-hour were higher.

Table 6: Centers' Proportion of Children, by Age Group, Fiscal Year 1997

Numbers in percent

Children's age[a]	Air Force	Civilian
Infants		
6 weeks-6 months	3.38	[b]
6-12 months	6.80	[b]
Subtotal	**10.18**	**4.99**
Toddlers		
12-24 months	16.20	[b]
24-36 months	22.05	[b]
Subtotal	**38.25**	**10.39**
Preschoolers		
3-5 years	46.62	72.95
Part-day preschoolers		
3-5 years	3.77	[b]
School-aged children		
6 years and over	1.19	11.68
Total	**100**	**100**

Note: Percentages do not equal 100 because of rounding.

[a]Categories for this column apply only to Air Force center data. See note in app. I concerning age group assignment and measurement of children's ages in the civilian center data.

[b]Data for civilian centers were not broken down into this subcategory.

Source: GAO analysis of Air Force and civilian center data.

In view of the importance of children's age as a factor in the overall cost per child-hour, we adjusted the Air Force cost estimate to take account of the age distribution differences between the Air Force and civilian centers' child populations. To do so, we calculated what the Air Force centers' costs would have been had the age distribution of the children they served been the same as that of the civilian centers. The result was that the difference in the centers' overall cost of labor per child-hour was reduced from 78 cents to 35 cents. Much of the 35-cent difference in the cost of labor that is left can be attributed to the higher compensation that Air Force centers pay caregivers—an average hourly compensation rate of $11.20 (salaries and benefits), which is $1.04 higher than the rate paid at civilian centers.

Finally, substituting the age distribution of the civilian centers' children for that of the Air Force centers' children reduced the overall cost per child-hour from $3.86 to $3.42, a decline from about 20 percent to about 7 percent. Thus, when we adjusted for age distribution, the cost of high-quality child care in Air Force and civilian centers was not substantially different.

Agency Comments

DOD commented on a draft of this report and generally concurred with our findings. However, DOD raised three issues about our research methods and how they might have affected the difference we found in Air Force and civilian centers' overall cost per child-hour. While the issues DOD raised are important study design considerations, the magnitude and direction of any cost differences that would result cannot be estimated. Moreover, as we concluded, the cost difference between Air Force and civilian centers is not substantial, and any shift in cost differences resulting from the issues DOD raised is unlikely to change that conclusion.

First, DOD considered the measure we used for the number of children served by Air Force centers dissimilar from the one we used for civilian centers and suggested that the Air Force center cost per child-hour was somewhat high in comparison to the civilian center cost because of that dissimilarity. However, we used the same measure—attendance—for the number of children served in both Air Force and civilian centers. For Air Force centers, attendance was based on counts conducted every hour of every day at each center; for each civilian center, attendance was based on a 1-year extrapolation of attendance reported for the day on which the Cost, Quality and Child Outcomes in Child Care Centers study team visited to collect data. Presumably, the Air Force center attendance data were

more precise than the extrapolations we used for the civilian centers. But we have no basis for determining whether more precise civilian center attendance data, if they had been available, would have been higher or lower than the extrapolated data. Thus, there is no basis for concluding whether more precise civilian center data would have decreased or increased the difference between estimated Air Force center costs and estimated civilian center costs.

Second, DOD argued that the Air Force and high-quality civilian centers were not comparable in terms of quality because of the method we used to select the civilian centers. DOD suggested that a difference in the centers' quality of care resulting from the sample selection procedure might explain the cost difference that we found. We selected civilian centers for our study from the Cost, Quality and Child Outcomes in Child Care Centers study sample on the basis of a score of 4.5 or higher on either an overall index of quality or a second index.[25] DOD pointed out correctly that a score of 4.5 to 5 on an overall index of quality was considered mediocre in the Cost, Quality and Child Outcomes in Child Care Centers study of April 1995. However, the goal in identifying civilian centers for our comparative cost analysis was to select civilian centers of a quality comparable to the Air Force centers. To achieve that goal, we had to find a way of measuring child care quality in both sets of centers. The only readily available information on the quality of care in the Air Force centers was the fact that all of those centers had been accredited by NAEYC. However, data on the quality of care in all 401 civilian centers in the Cost, Quality and Child Outcomes in Child Care Centers study sample had been collected using the two indexes noted above—an overall index of quality and a second index. A small number of these civilian centers (25) also were accredited by NAEYC. We looked at the NAEYC-accredited civilian centers' scores on the two indexes of quality as surrogate measures for the Air Force centers' scores on these indexes. We found that only 11 of the 25 had scored 5 or higher, while 4 had scored below 4.5. Rather than use the lowest score as our cutoff point for identifying high-quality centers, we selected the more conservative score of 4.5 or higher as the range in which NAEYC-accredited centers' scores likely would fall on the two indexes of child care quality. Thus, we were satisfied that using a score of 4.5 or higher on either of the two indexes to select high-quality civilian centers for our analysis provided a subsample of centers comparable in quality to the Air Force centers.

[25]See app. I for a discussion of our sample selection procedures.

Finally, DOD asserted that the cost per child-hour for the entire military child development system—child development centers, family child care, and school-age care—might have been less than the cost per child-hour for the Air Force child development center program. Unfortunately, the detailed cost data for all military services and all types of care that we needed in order to estimate the cost per child for the entire system were not available for either the military or the civilian child development systems.

DOD also had several technical comments, which we incorporated in the report where appropriate. DOD's comments are included in appendix IV.

As agreed with your offices, unless you publicly release its contents earlier, we will make no further distribution of this report until 30 days after its issue date. At that time, we will send copies to the Honorable William S. Cohen, Secretary of Defense, and congressional committees with an interest in this matter. We also will make copies available to others on request.

If you or your staff have any questions about this report, please contact me on (202) 512-7215 or Karen Whiten, Assistant Director, on (202) 512-7291. Other GAO contacts and staff acknowledgments are listed in appendix V.

Cynthia M. Fagnoni

Cynthia M. Fagnoni
Director, Education, Workforce, and
Income Security Issues

Contents

Letter		1
Appendix I Scope and Methodology		28
	Study Scope	28
	Limitations of the Cost Analysis	32
	Procedures Used to Estimate Air Force Child Development Center Costs	34
	Procedures Used to Estimate Civilian Child Care Costs	42
	Factors Affecting Air Force Costs	45
Appendix II Child-to-Staff Ratios Within Group Size Recommended by NAEYC		46
Appendix III Fiscal Year 1997 per-Child-Hour Cost Components for Air Force Child Development Centers, by Age Group		48
Appendix IV Comments From the Department of Defense		50
Appendix V GAO Contacts and Staff Acknowledgments		52

Tables

Table 1: Funding Obligated for DOD Child Development Program, Fiscal Year 1998 13
Table 2: Parent Fees for Military Child Development Centers, School Year 1998-99 14
Table 3: Estimated Full Cost of Air Force Child Development Centers, Fiscal Year 1997 16
Table 4: Age Group Distribution and Cost of Care at Air Force Centers, Fiscal Year 1997 19
Table 5: Unadjusted Components of Costs per Child-Hour, by Age Group, Fiscal Year 1997 20
Table 6: Centers' Proportion of Children, by Age Group, Fiscal Year 1997 21
Table I.1: Comparison of NAEYC Standards and the Overall Index of Quality Developed for the Cost, Quality and Child Outcomes Study 31

Figure

Figure 1: Estimated Cost per Child-Hour at Air Force Centers, by Age Group, Fiscal Year 1997 17

Abbreviations

CIS	Caregiver Interaction Scale
CPI	Consumer Price Index
DOD	Department of Defense
ECERS	Early Childhood Environment Rating Scale
FTE	full-time equivalent
GS	general schedule
ITERS	Infant/Toddler Environment Rating Scale
MCCA	Military Child Care Act
NAEYC	National Association for the Education of Young Children
OFP	Office of Family Policy
TIS	Teacher Involvement Scale

Appendix I

Scope and Methodology

This appendix discusses in more detail the scope and methodology for determining the cost per child of Air Force and civilian center-based child care.

Study Scope

Our cost analysis did not cover the entire military child development program because we could not find detailed cost data for all services or for all types of care. The military child development program is implemented throughout the Department of Defense (DOD), but the military services conduct program cost accounting and reporting independently for the child development programs they operate. Each of the military services' child development program managers has some discretion over the cost data collected and maintained by the program. So, when we searched for sources of program cost data at DOD, we found only two reports about child development program funding that all four services submitted in comparable format: (1) the Appropriated and Nonappropriated Fund Expense Summary for 1997 (the "7000.12 report") and (2) DOD's Program Budget Exhibit (known as the PB-50) for its child development program. However, neither of these reports contained information at the level of detail needed to estimate and analyze the full cost of child development program operations in all four military services, particularly for those cost components we expected to be the most important: the cost of labor and space. Moreover, none of the services collected information on the salaries and benefits of family child care providers.

To design the comparative cost analysis, we also had to identify sources of total cost information for civilian child care. After an extensive literature review, we found that only the Cost, Quality and Child Outcomes in Child Care Centers study collected complete cost information for civilian child care programs, and that this study was limited to child care centers. Although a study of civilian family child care was under way, that study's data file was not released in time to use it in our study. Thus, we narrowed the study scope to child care centers, the child care type for which the most complete cost data for both military and civilian child care were available. Because the study focus was the cost of high-quality child care, we limited the scope of the military cost analysis to the Air Force child development center program, the only one of the four military programs in which all centers had achieved National Association for the Education of Young Children (NAEYC) accreditation. We treated NAEYC accreditation as the measure of quality attained by the Air Force centers and selected a subsample of high-quality civilian centers from the Cost, Quality and Child

Outcomes in Child Care Centers study population for our comparative cost analysis, using an overall index of quality for infant, toddler, and preschool learning environments that the Cost, Quality and Child Outcomes study team had developed for their work.

We did not attempt to independently assess the quality of the DOD or civilian centers included in our study. However, to determine whether the Air Force child development centers were comparable to the subsample of high-quality civilian centers, we examined the similarity of the NAEYC accreditation standards and the Cost, Quality and Child Outcomes study team's overall index of quality. To compare the accreditation standards and the index of quality, we adapted 15 indicators of child care quality specified by the National Research Council's Panel on Child Care Policy.[26] The Panel developed these indicators to compare the provisions of six sets of professional standards on child care quality, including the NAEYC standards and the Early Childhood Environment Rating Scale (ECERS) used in this study.

While not identical, the standards NAEYC uses to assess centers for accreditation and the dimensions of quality measured by the overall index are analogous. Both NAEYC standards and the overall quality index measure child-caregiver interactions and structural features of the child care environment. NAEYC's National Academy of Early Childhood Programs developed the accreditation standards by reviewing child development research, child development program standards in localities, and the judgments of 175 specialists in the early childhood field. The accreditation standards address the quality of interactions between children and caregivers as well as structural features such as child-to-staff ratios and group size.

The Cost, Quality and Child Outcomes study team's overall index of quality integrates measures from four scales for early childhood learning environments: (1) ECERS, (2) the Infant/Toddler Environment Rating Scale (ITERS), (3) the Caregiver Interaction Scale (CIS), and (4) the Teacher Involvement Scale (TIS). ECERS is designed to assess the surroundings created for children and adults in an early childhood setting. It is used in one classroom at a time for groups of children 2 to 6 years old. Ratings are based on the situation observed in the classroom or reported by the teacher, rather than on plans for the future. ITERS is an adaptation of ECERS by its authors especially for use with infants and toddlers. The CIS

[26]See National Research Council, Panel on Child Care Quality, Who Cares for America's Children? (Washington, D.C: National Research Council, 1990), app. B, "Professional Standards for Early Childhood Programs," pp. 324-39.

measures teacher involvement and teacher style, producing scores for "sensitivity," "harshness," "detachment," and "permissiveness." The TIS also measures child-caregiver interactions, focusing on how a caregiver interacts with children during periods of observation. The caregiver's degree of involvement is scored on a 6-point scale, ranging from "ignore" to "simple" to "intense."

The NAEYC standards incorporate all 15 of the indicators of quality developed by the Panel on Child Care Quality. ECERS and ITERS together account for 11 of the indicators among their scales and 2 more, "staff/child ratio" and "group size," could be calculated from the study team's data file. The indicator "potential for forming an affectionate relationship with a familiar caregiver," which ECERS and ITERS do not measure directly, is captured by the CIS and the TIS. One indicator, which pertained to a requirement for caregiver training, was not measured by the scales in the Cost, Quality and Child Outcomes study team's overall index of quality or by other data collection instruments used in their study. However, because all but 1 of the 15 quality indicators are represented in the accreditation standards and index of quality, we considered the definition of child care quality used in both assessment tools consistent and the quality of care in the two sets of centers comparable. See table I.1 for the results of the comparison.

Table I.1: Comparison of NAEYC Standards and the Overall Index of Quality Developed for the Cost, Quality and Child Outcomes Study

Indicators[a]	NAEYC standards	Scales in the overall index of quality			
		ECERS	ITERS	CIS	TIS
Fosters potential for forming an affectionate relationship with a familiar caregiver.	x		x	x	x
Encourages frequent positive interaction between caregiver and children. Caregivers are responsive, positive, accepting, and comforting.	x	x	x	x	x
Requires caregiver training related to child development.	x				
Provides opportunities for caregiver training.	x	x	x		
Specifies a maximum group size.	x	[b]	[b]	[b]	[b]
Specifies a child-to-staff ratio.	x	[b]	[b]	[b]	[b]
Provides curriculum that encompasses both socioemotional and cognitive development.	x	x	x		
Provides children opportunities to select activities.	x	x	x		
Values experience with cooperative group process.	x		x		
Provides structured but not overly rigid curriculum.	x	x	x		
Encourages recognition and appreciation of children's culture.	x	x	x		
Provides child-oriented physical environment.	x	x	x		
Provides orderly and differentiated physical setting.	x	x	x		
Provides for parental involvement.	x	x	x		
Encourages parent/staff conferences and communication.	x	x	x		

[a]Adapted from indicators developed by the National Research Council's Panel on Child Care Quality.

[b]Measured by other Cost, Quality and Child Outcomes study team data collection instruments.

We also examined the scores that the 25 accredited centers in the Cost, Quality and Child Outcomes study population received on the overall index of quality and a second index that combined scores on the ECERS and ITERS indexes. Of the 25 accredited centers in the entire study sample, 21 met the criteria for inclusion in the high-quality subsample and were

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included among the 150 selected.[27] That is, 21 accredited centers had scores on the overall index of quality or the ECERS/ITERS index of 4.5 or higher. Four accredited centers whose scores were less than 4.5 on both indexes were not selected for the high-quality subsample, suggesting that the measures of child care center quality employed by the overall index of quality and the ECERS/ITERS index are slightly more stringent than NAEYC standards.

Limitations of the Cost Analysis

Because there was no single data set for our analysis, we used multiple sources of existing data and a questionnaire we developed. The fact that most data had been collected for purposes other than our study resulted in some limitations. Therefore, although we present our cost information in dollars and cents, our findings are estimates and are not as accurate as this level of measurement implies. The following measurement and analysis issues should be considered in reviewing our findings.

DOD and Air Force Cost Data Required Supplementation

The Air Force Semiannual Child Development Center Report and the Appropriated and Nonappropriated Fund Expense Summary for 1997 are administrative cost reports developed for routine Air Force planning and budgeting. Therefore, several of the data items of interest for our study had to be supplemented with data from other sources or imputed. For example, the semiannual report provided the salary grade of child development center civil service employees paid under the Civil Service general schedule (GS) but not the step or locality.[28] The expense summary reported the cost of supplies purchased by the child development centers, but the cost item included bulk supplies for the family child care and school-age programs as well. One-half of the Air Force installations did not report food costs on a more detailed expense summary provided by the Services Directorate of the Air Force Family Member Program. For these and other items, we supplemented the data provided by DOD with data from our survey or additional sources. The Air Force data used in our cost estimate have not been audited by the Air Force audit service.

[27]For purposes of our analysis, we considered centers that scored 4.5 or more on the 7-point index to be high-quality.

[28]The U.S. Civil Service System's general schedule designates positions by salary grade, from 1 to 15. Salary increments between grades are designated by steps. Pay adjustments, known as locality pay, also are made to compensate for disparities in Civil Service and private sector salaries and wages for comparable positions.

Selecting a Measure for the Cost-per-Child Analysis Required Balancing Accuracy Against Availability

Air Force and civilian child development centers counted the number of children served in several ways, and only some of the information was available by the age groups of the children served. The Air Force's semiannual report had information on hourly attendance; the total number of hours children spent in the child development center classrooms during the year; and the total number of children the center had the physical space to house, also called the number of "child care spaces." However, in the semiannual report, only the information on the number of hours children spent in the child development center classrooms was reported by age group. The Cost, Quality and Child Outcomes in Child Care Centers study data file had information on the number of children enrolled and on the number of children in attendance on the date of data collection. Both measures were available by the age groups of the children served. Both measures also were expressed as the number of full-time-equivalent (FTE) children served—that is, the total number of children who attended for the full day as well as children who attended for only part of the day. However, information on actual hourly attendance and on the number of child care spaces in civilian centers was not available in the Cost, Quality and Child Outcomes in Child Care Centers study data file.

Because the Air Force data on hourly attendance and the civilian data on daily attendance were the most similar measures, and both were available by age group, we selected them as measures for the number of children served. However, because the Cost, Quality and Child Outcomes in Child Care Centers study's daily attendance measure was counted only 1 day in the year, we converted it to a measure of the total number of hours children in high-quality civilian centers spent in the classroom during a year by assuming that the number of children in attendance in civilian centers was the same on every day of the year. This assumption may have yielded a total that was slightly more or slightly less than the actual number of children served in civilian centers.

Current Total Cost Data on Civilian Child Care Centers Were Not Available

Because the most recent data available on the full cost of civilian child care centers and on the wages of child care providers were collected in 1992, we had to approximate the Cost, Quality and Child Outcomes in Child Care Centers cost data, adjusted for inflation as indicated by the Consumer Price Index (CPI). While the Employment Cost Index in the Economic Report of the President shows that workforce wages increased at about the same rate as the CPI, this measure would be less precise than the actual wage information available for the Air Force child development center staff.

Our Air Force and Civilian Cost Analyses Did Not Include the Costs of Oversight, Inspections, or Resource and Referral Services

In the Air Force child development program, the Air Force administers and incurs the cost for all program operations, including oversight, inspection, resource and referral services for parents seeking child care, and centers. In the civilian child care center market, however, entities other than child care centers pay for and perform the regulatory and referral functions. State governments monitor and inspect child care centers, and both public and for-profit organizations provide resource and referral services. Civilian resource and referral agencies provide a range of services—consumer education, databases of services, child care supply studies, and training for providers—but do not care for children. Therefore, to ensure comparability, we excluded the cost of regulatory and referral activities from our analysis.

Labor Cost Information in the Cost, Quality and Child Outcomes Data File Was Not as Detailed as That in the Semiannual Report

Center directors provided wage and benefit information on all caregiver staff but were given the option of providing either the same level of detail for all additional staff positions or total annual wages and benefits. Some centers provided the detailed wage and benefit information, but most centers did not. It was not possible, therefore, to separate the civilian center labor cost information into direct and indirect labor costs for comparison with the Air Force center labor cost data.

We describe the measurement and analysis procedures that underlie all of these issues in greater detail in the sections that follow.

Procedures Used to Estimate Air Force Child Development Center Costs

To develop estimates of the cost of child care at Air Force child development centers, we used fiscal year 1997 data from the Air Force Semiannual Child Development Center Report concerning the number of hours of child care provided at each center and wage rates for center staff, as well as other data we obtained from a number of sources. In estimating the cost of providing care to specific age groups of children at each center, we allocated costs other than direct labor costs to each age group on the basis of that age group's share of the total hours of care provided at the center.

Data Sources Used to Estimate Air Force Cost Components

The two Air Force Semiannual Child Development Center Reports filed for each Air Force child development center in fiscal year 1997 were the primary sources of the data used in our estimates of the cost of care. From these reports, we obtained information on the number of hours of care for each age group of children during the 6-month period covered by the

report, the number of staff-hours devoted to the care of each age group, the number of caregivers and other staff at the center, the wage rates of those staff paid from nonappropriated funds, and the grade levels of staff paid from appropriated funds.

A second data source was the questionnaire responses we received from each Air Force child development center. In October 1998, we sent questionnaires to the directors of all child development centers (93) located on the 67 Air Force bases in the United States. By February 1999, all questionnaires had been returned. The questionnaire provided information on the distribution of caregiver staff by grade level across the various age groups of children, the estimated number of hours of volunteer help and the value of any donated items received by the center during that fiscal year, the indoor square footage of space occupied by the center, and the dollar amount of expenditures made by the center during fiscal year 1997 for supplies.

We collected the survey data to supplement the cost information available in the child development centers' semiannual reports. Because some Air Force child development program coordinators submitted a single semiannual report for two or more centers located on their bases, we had only 75 semiannual reports. Therefore, when we entered the survey and semiannual report data into a single data file, we combined the survey responses of bases that had submitted one semiannual report but two or more survey questionnaires. Thus, for analysis purposes, the total number of Air Force child development centers was 75.

To determine the hourly wage rates to be used in estimating the cost of labor performed at a center by employees paid by appropriated funds, we referred to the 1997 GS pay schedule applicable to the geographic location of the center. To determine the per-square-foot rental cost of indoor space, we used the General Services Administration publication, Summary Report of Real Property Leased by the United States Throughout the World as of September 30, 1996. As discussed below, we also used a few other data sources for specific items of information in developing our cost estimates.

Estimating Procedures

Because the Air Force semiannual reports and our survey of child development centers did not furnish information about the costs of utilities, food, major equipment, occupancy, legal services, or donations, we used supplementary data sources and estimating procedures to

develop cost estimates for these components. In general, we estimated direct labor costs for caring for each age group of children from information contained in the semiannual report that directly related caregiver staff-hours of work to each age group.

For all cost items other than direct labor, we had to make assumptions regarding what portion of each should be considered attributable to each of the various age groups of children served by the center. For almost every such cost item, we allocated the cost proportionally according to each age group's share of the total number of hours of child care provided by the center during fiscal year 1997. Thus, for example, if care for 3- to 5-year-olds constituted 20 percent of a center's total child care hours, we allocated 20 percent of that center's estimated annual cost of utilities to the 3- to 5-year-old age group. In three instances, we varied this allocation procedure slightly. In the cases of the costs of cribs and playground equipment, it did not seem reasonable to follow this procedure. Only the youngest children would likely make use of cribs, and, conversely, the youngest children would not make use of playground equipment. Therefore, we allocated the costs of cribs to children 2 years of age or younger, and within that category to each of these groups—6 weeks to 6 months, 6 to 12 months, and 12 to 24 months—on the basis of each group's total number of child-hours. In allocating the cost of playground equipment, we excluded the 12-month-old and younger group and allocated the cost to the remaining age groups according to each group's total number of child-hours. Similarly, when allocating food costs, we excluded the 12-month-old and younger group, since we believe that their parents provide that group's food.

The following paragraphs describe in more detail the cost components included in our estimates and the method we used to estimate the magnitude of each of them.

Direct Labor

The term "direct labor" refers to the work of caregiver staff in classrooms. To estimate the cost of direct labor for each age group of children at each center, we multiplied the total number of staff-hours shown on the two fiscal year 1997 semiannual reports as having been spent providing care to that age group by the relevant hourly wage. To determine the relevant hourly wage for each age group's care, we needed three items of information: the grade levels of the staff members providing the care, the number of child-hours of care provided by each grade level, and the hourly wage of each grade level. Since the semiannual reports did not associate grade levels with the staff-hours shown, we used information from our

center questionnaire to estimate the grade level distribution of the staff-hours.

On our questionnaire, center directors were asked to indicate, for a typical day, which grade levels of staff were assigned to each age group of children and how many staff-hours of each grade level were devoted to each age group of children. We applied the staffing pattern indicated in response to that question to the total number of staff-hours shown in the semiannual reports for each age group. For example, if a center director's response indicated that on a typical day one-half of the staff time devoted to the 3- to 5-year-old age group was the time of a GS-4 staff person, we assumed that half of the staff-hours shown on that center's semiannual report as devoted to the 3- to 5-year-old age group were GS-4 staff-hours. In those instances in which a center questionnaire did not indicate which grade levels of caregiver staff served a particular age group, we applied to that age group the median wage rate among caregivers for that age group at centers that did provide caregiver grade level information for that age group.

For caregiver staff paid from nonappropriated funds, we obtained the hourly wage information for each grade level directly from the semiannual report for the second half of fiscal year 1997. For those paid from appropriated funds, the GS employees, we used the GS hourly wage rates for the employees' grade level shown in the 1997 GS pay schedule for the locality pay area in which the center is located. By reviewing the Office of Personnel Management's Central Personnel Data File, we determined for the job series in which most caregiver staff are employed—Job Series 1702, Education and Training Technician—and for each grade level in that series, the average step of all employees at that grade level. In our cost estimating procedure, we assumed, for each GS-graded employee, that the employee was at whatever the average step was for all employees at that grade level. Thus, for every GS-graded employee, we assumed that the employee's hourly wage rate in fiscal year 1997 was the rate in the center's geographic location applicable to the nationwide average step for Job Series 1702 employees at the grade level of the employee in question.

To each hourly wage rate we added a factor to cover the cost of fringe benefits. Air Force officials informed us that for GS-graded employees, fringe benefits equal 25 percent of salary, and for employees paid from nonappropriated funds, fringe benefits equal 22 percent of wages. Therefore, to account for benefit costs, we multiplied all GS hourly wage rates by 1.25 and all nonappropriated funds employees' wage rates by 1.22.

By applying the appropriate estimated hourly wage (and benefit) rate to the number of staff-hours reported for each age group of children, we arrived at an estimated total direct labor cost for each age group.

Indirect Labor

We considered as indirect labor all work performed by center employees other than the direct caregivers. Included in this category is the work of salaried employees, such as the center director, assistant directors, and training and curriculum specialists, as well as hourly employees, such as administrative staff and food service personnel, among others. From the semiannual reports for the second half of fiscal year 1997, we obtained the number and pay grades of these salaried employees, and for the nonsalaried employees, we obtained the number of hours worked each week. We then multiplied the number of hours per week worked by each hourly employee, or estimated hours per week worked, by the employee's reported, or assumed, hourly wage rate; we then multiplied the resulting number by 52 (number of weeks) and added that total to the annual salary of the salaried employees (including for both categories of employees the cost of fringe benefits) to arrive at an estimate of the center's total cost of indirect labor. (Since training and curriculum specialists also work with the family child care providers and school-age caregivers, we allocated only one-third of their salaries to Air Force center costs.) We then allocated a portion of that total cost to each age group of children, on the basis of its proportion of total child-care hours, to estimate the indirect labor cost of providing care to each age group.

Supplies

We obtained estimates of the cost of supplies directly from the centers in their questionnaires. We asked each center director to estimate the cost of supplies purchased during fiscal year 1997. Questionnaires from a few centers did not provide an estimate of the cost of supplies, so for each of those centers, we estimated supply cost on the basis of the center's number of child-hours for the year. We developed the quantitative relationship between child-hours and supply cost by examining the relationship between those two quantities among the many centers that did provide estimates of the cost of supplies.

Food

We estimated the centers' food costs on the basis of information reported by each Air Force base's Appropriated Fund Expense Summary for 1997 (7000.12 report). As with other cost elements, we then allocated this total cost across the various age groups of children, with the exception of the 6-week to 12-month age group. We excluded this group because such young children do not consume the kind of food purchased by the centers. For a large number of centers, the 7000.12 report did not show the cost of

food. For those centers for which food cost data were missing, we estimated food costs on the basis of the number of meals served by the center. We developed the quantitative relationship between the number of meals served and food cost by examining the relationship among centers that did provide estimates of the cost of food.

Utilities

From the Air Force's Appropriated and Nonappropriated Fund Expense Summary for 1997 we determined the total amount of utilities costs incurred by all centers worldwide in fiscal year 1997. We then calculated the percentage of centers located outside the United States and reduced the total amount of worldwide utilities costs by that percentage, assuming that the remaining amount was attributable to centers in the United States. We then allocated that remaining amount across all U.S. centers on the basis of the total indoor square footage of space used by each center. Thus, for example, if the indoor square footage of a given center constituted 5 percent of the total indoor square footage of all domestic centers, that center would be allocated 5 percent of the total estimated utilities costs of all U.S. centers.

Major Equipment

We defined the cost of using major equipment as the 1-year allocation of the acquisition cost of all capital equipment (equipment whose purchase price exceeds $300).[29] Thus, the use of equipment cost would be equal to the straight-line depreciation charge on equipment that the center could take if it were a private sector firm. Therefore, it was necessary for us to determine, or assume, three items of information: the kinds and quantities of equipment a center would use, the purchase price of each item of equipment, and the expected useful life of each item of equipment. To estimate the kinds and quantities of equipment a center would use, we interviewed the directors of two large centers, a medium-sized center, and a small center who had reasonably complete information available on the types of equipment that their centers used.[30] With a few exceptions, we used the average of the two large centers' purchase costs for each item of equipment as our estimate of the purchase cost for that same item for all centers.

[29]Major equipment included items in a child development center's kitchen, office, classroom, and playground, such as refrigerators, freezers, television cameras and monitoring systems, swings, and outdoor playhouses.

[30]We contacted centers on Air Force bases that reported having only one child development center. A center was considered small if, on the semiannual report submitted for fiscal year 1997, the director reported 89 or fewer full-day children in attendance, medium if the director reported 90 to 124 full-day children in attendance, and large if the director reported 125 or more full-day children in attendance.

To estimate the quantities of each item of equipment that a center would use, we began by assuming that each center would use only one of each item of kitchen, playground, classroom, and office equipment. For three items—cribs, coat racks, and shelving units—we assumed that the quantity used by a center would vary according to the number of children served by the center. To estimate the quantity of each of these items that each center would use, we began by setting as a standard the equipment configuration used by one of the two large centers from which we had obtained cost information. We then compared the total number of child-hours of care provided by each center during fiscal year 1997 to the total for the center we were using as our standard and calculated the percentage relationship between the two. We used this relationship as the basis for estimating the quantity of each of the four items of equipment that each center would use. For example, if a given center had as its total number of child care hours 10,000 hours and the "standard" center had a total of 15,000 hours, we would assign to the center two-thirds of the quantity of each item that the "standard" center used. If the standard center used 300 shelving units, we would assume that the other center would use 200 shelving units. The two exceptions to this method involved cribs and outdoor playground equipment. Because we assumed that cribs would be used by only the youngest children, we "assigned" cribs to centers on the basis of total child-hours for only children 2 years of age or younger. We also assumed that outdoor playground equipment would not be used by children under the age of 1.

After estimating the quantity of each item of equipment a center would use, we multiplied that quantity by the estimated unit purchase cost of that item to arrive at an estimate of the total purchase cost of that item. We then divided that cost by the number of years of expected useful life of the item to obtain an estimated annual usage cost. The measures of expected useful life we used for the various items of equipment ranged from 5 to 15 years and were based on the experience reported to us by the center directors we had interviewed regarding the kinds of equipment used at their centers. Finally, since the purchase prices we used in our analysis were 1998 prices and the centers acquired much of the equipment in previous years, we converted our 1998 usage costs to costs expressed in an earlier year's dollars in order to replicate as closely as possible the purchase costs the centers had incurred when they acquired the equipment. For purposes of this conversion, we made an assumption that each item of equipment being used at centers in fiscal year 1997 had at that time been in use for half its useful life. Thus, for example, if a category of equipment has a useful life of 10 years, we assumed that each such item of

equipment had been purchased 5 years earlier, or in fiscal year 1993. We thus deflated the 1998 purchase price of all such items to their 1993 price. We added the estimated annual usage costs of all items of equipment in each center to estimate that center's total annual equipment usage cost. The total cost of each center's use of equipment was then allocated across the center's age groups of children.

Occupancy

The cost element that we refer to as occupancy represents the annual cost of using the space occupied by each center. We defined occupancy cost as the annual rent that a center would be required to pay if it were to lease its space on the commercial rental market. In the center questionnaire, we asked the center director to indicate the total square footage of indoor space used for center activities, including administrative activities. We multiplied that number by $5.93 to arrive at an estimated annual occupancy cost. We chose the $5.93-per-square-foot rate on the basis of the average cost per square foot of space leased by the Air Force in 1996, as stated in the 1999 General Services Administration's report on real property. That cost was $5.80. Using the CPI to determine the inflation factor, we raised the $5.80 cost to the $5.93 figure.

Legal Services

We based our estimate of the annual cost of legal services provided to each center on the opinion of officials of the Office of the Air Force Judge Advocate General regarding the extent of provision of such services. Those officials estimated that, on average, about 1-1/2 hours per month of the time of a lieutenant colonel or a colonel would be spent in providing such services. We therefore determined the midpoint between the lowest annual pay rate of the lieutenant colonel and highest pay rate of the colonel and divided that amount by the 2,080 hours in a federal work year to arrive at an hourly rate. We multiplied that figure by 1.5 to estimate a monthly cost and then multiplied that cost by 12 to estimate the annual cost of the legal services provided to each center. We then allocated that cost across the age groups of children receiving care at each center.

Donations

In the center questionnaire we asked each center director to estimate the number of hours of volunteer help the center received during a typical week in fiscal year 1997. For each center, we multiplied the number of reported hours of such help by 52 to estimate the total number of hours of such work for the year. We then multiplied that total by the minimum wage rate of $5.15 an hour in effect in 1997 to estimate the total value of volunteer labor donated to the center in fiscal year 1997. We then allocated that total figure across the various age groups of children served by the center.

In the center questionnaire we also asked each center director to estimate the total value of donations of such items as toys and supplies received by the center during fiscal year 1997. We allocated that total value across the various age groups of children.

Other Costs

We did not attempt to estimate an imputed value for insurance or taxes for the Air Force child development centers.

Procedures Used to Estimate Civilian Child Care Costs

The Cost, Quality and Child Outcomes in Child Care Centers study data file was the only source of data we used to develop estimates of the cost of care at civilian child care centers. The Cost, Quality and Child Outcomes study team was an interdisciplinary group composed of economists and child development psychologists from universities in four states, led by the University of Colorado at Denver. The team selected the child care centers examined in the study using a stratified random sample of approximately 100 centers in subregions of each of four participating states, with approximately equal representation of for-profit and nonprofit centers. The four participating states were California, Colorado, Connecticut, and North Carolina.

The data we used most extensively were from an interview with the director of each child care center in the subsample. The interview was quite extensive and included all of the cost items.

Selection of the Subsample of High-Quality Civilian Centers

An important aspect of the Cost, Quality and Child Outcomes in Child Care Centers study that made the data suitable for comparison with the Air Force child development centers was a measure of the quality of each civilian child care center. Because DOD child development centers are acknowledged to be of high quality, it was important to compare the Air Force centers selected for the cost analysis only with high-quality civilian centers.

The study employed several measures of center quality, but two in particular for centers with infants, toddlers, and preschoolers. These measures were obtained by direct observation. Two members of the study team randomly picked two rooms in the center and observed the interaction in the rooms for 6 hours. The first measure was the ECER/ITER scale, a combined measure of the ECERS and ITERS. The studies' authors used these because they are well established global measures of child care processes. The second measure the authors computed was a scale called

INDEXECW, which is a weighted process index scaled to ECERS and includes measures from the CIS and TIS. We selected our high-quality subsample by choosing centers that scored 4.5 or higher on either of these two 7-point scales. The resulting subsample included 150 centers or 37 percent of the Cost, Quality and Child Outcomes study population.

Estimating Procedures

The Cost, Quality and Child Outcomes study team collected extensive information on the costs of operating a civilian child care center. This information allowed us to compare costs with those of Air Force child development centers. Information on the following components of cost was obtained during the interview of the director. Directors were asked to provide records of the last fiscal year's expenses for review by the study team. The following cost components were collected as total annual costs for the center, per year: (1) wages, (2) nonwage benefits, (3) staff education/training costs, (4) subcontractor costs, (5) occupancy cash costs, (6) food service costs, (7) insurance costs, (8) other operating costs, (9) overhead costs, and (10) the subsidy supplied. The subsidy is the estimated value of donated goods and services, such as volunteer labor, donated food, building space, and utilities. We used these cost components to estimate the overall cost per child and cost per child by age group for the high-quality civilian centers. Regarding labor costs, although a few centers provided separate direct and indirect labor costs, most centers in the Cost, Quality and Child Outcomes in Child Care Centers study did not. Therefore, we developed our own estimates of the portion of total labor costs that should be considered direct labor and the portion that should be considered indirect labor. For those few centers that provided separate amounts for direct and indirect labor costs, we calculated the overall proportions of total labor costs attributable to direct and indirect labor costs, which were about 82 percent and 18 percent, respectively. We then applied these proportions to total labor costs for all centers.

The cost data were collected in the spring of 1993 but were requested for the latest fiscal year. We assumed the latest fiscal year would be 1992 and adjusted the civilian costs from 1992 to 1997 by using the CPI.

Allocating Costs by Child-Hours

As noted, the study provided annual costs for the entire center, not costs by age group. Because we needed to compare the civilian with the military child care costs by age group, we needed to allocate center costs by the proportion that each age group's child-hours constituted of the center

total. Once we calculated the number of child-hours in each age group, we knew the proportion each age group represented of the whole.

Child-Hours

During the director's interview, the director was asked what age group each room in the center contained and how many FTE children were there on that particular day. These responses were used to determine whether each room had infants (0 to 18 months), toddlers (19 to 30 months), preschool-aged children (2 to 5 years), kindergarten-aged children (5 years), or school-aged children (6 years and older).[31] We used the reported age group in each room to add up the FTE children for different age groups across the 150 high quality-centers. The total number of FTE children for the center for the year is calculated from the number there on the day of the interview. First, we multiplied the number of children present on the day of the interview by eight, resulting in the number of child-hours per day. We then multiplied the daily number of hours by five (the number of days in a week that most centers were open) to get weekly hours. Next, we multiplied the weekly hours by 52 (weeks per year). If a center closed for the summer, we subtracted the number of months the center was closed times 4.3 (average number of weeks in a month) from the total for a yearly figure. We then allocated the costs on the basis of the percentage of total child-hours each age group had.

Caregiver Compensation Rate

The Cost, Quality and Child Outcomes in Child Care Centers study included the hourly wage rate for many of the caregivers and aides, but not all. The rest of the compensation information consisted of annual salaries. We divided the annual salary by 52 weeks times the number of hours worked per week (minus the number weeks the center was closed) to achieve an hourly rate. We then calculated total compensation by adding employee benefits, which were equivalent to 19.73 percent of the wage rate, to the wage.

Child-To-Staff Ratios

The Cost, Quality and Child Outcomes in Child Care Centers study data file had information that allowed us to compute ratios of the number of children per caregiver in the centers' classrooms, known as the

[31]The ages of children in the age group categories are approximate. The Cost, Quality and Child Outcomes study team learned during data collection that children in many centers were assigned to groups on the basis of their developmental level, rather than their chronological age. Therefore, because very young children develop at different rates, it was possible that children as old as 18 months were placed in infant rooms, and children as young as 2-1/2 might be placed in preschool rooms.

"child-to-staff ratio." One segment of the data file contained information on the number of hours a week that each caregiver and aide worked. First, we divided the total number of hours worked by all of the caregivers in our subsample by the total number of FTE caregivers. This gave us the average number of hours worked. We then multiplied that figure by 52, and subtracted the time the center was closed. Because we already had child-hours, this additional information on caregiver-hours allowed us to calculate a ratio of child-hours to caregiver-hours for each age group.

Factors Affecting Air Force Costs

To further understand how much the age distribution of the centers' children affected the overall Air Force cost per child-hour, we estimated what the Air Force centers' cost would be using the age distribution of the civilian centers' children. We reestimated the Air Force overall cost per child-hour, substituting the age distribution of the civilian centers' children for the age distribution of Air Force children in the total cost estimate. This estimate allowed us to calculate the dollar value of the difference that the age distribution of the children contributed to the overall cost per child-hour.

Child-to-Staff Ratios Within Group Size Recommended by NAEYC

	Group size										
Age of children	**6**	**8**	**10**	**12**	**14**	**16**	**18**	**20**	**22**	**24**	**28**
Infants (birth-12 months)	3:1	4:1									
Toddlers (12-24 months)	3:1	4:1	5:1	4:1							
2-year-olds (24-30 months)		4:1	5:1	6:1							
2-1/2-year-olds (30-36 months)			5:1	6:1	7:1						
3-year-olds					7:1	8:1	9:1	10:1			
4-year-olds						8:1	9:1	10:1			
5-year-olds						8:1	9:1	10:1			
6- to 8-year-olds								10:1	11:1	12:1	
9- to 12-year-olds										12:1	14:1

Notes: Smaller group sizes and lower child-to-staff ratios have been found to be strong predictors of compliance with indicators of quality, such as positive interactions among staff and children and developmentally appropriate curriculum. Variations in group sizes and ratios are acceptable in cases in which programs demonstrate a very high level of compliance with criteria for interactions, curriculum, staff qualifications, health and safety, and physical environment.

Source: NAEYC.

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Fiscal Year 1997 per-Child-Hour Cost Components for Air Force Child Development Centers, by Age Group

	0-6 months	
Cost components	**Cost per hour**	**% of total**
Direct labor	$3.73	68.8
Indirect labor	0.90	16.6
Supplies	0.28	5.2
Utilities	0.07	1.4
Food	0	0
Equipment	0.04	0.7
Space	0.38	7.1
Legal services	0	0
Volunteers	0.01	.2
Donations	0	0
Total	**$5.43**	**100**

6-12 months		12-24 months		24-36 months		3-5 years		Part-day preschool		6 and over	
Cost per hour	% of total	Cost per hour	% of total	Cost per hour	% of total	Cost per hour	% of total	Cost per hour	% of total	Cost per hour	% of total
$3.75	69.5	$2.84	60.2	$2.12	53.3	$1.38	42.7	$1.41	42.4	$1.34	45.6
0.87	16.2	0.91	19.4	0.90	22.7	0.88	27.3	0.94	28.3	0.70	24.0
0.27	5.1	0.27	5.8	0.27	6.8	0.27	8.5	0.23	7.0	0.19	6.4
0.07	1.4	0.07	1.5	0.07	1.8	0.07	2.3	0.08	2.3	0.08	2.8
0	0	0.21	4.5	0.21	5.3	0.21	6.3	0.21	6.3	0.18	6.1
0.04	0.8	0.02	0.4	0.03	0.7	0.03	0.9	0.03	1.0	0.02	0.7
0.38	7.0	0.37	7.9	0.37	9.2	0.38	11.7	0.39	11.8	0.42	14.2
0	0	0	0	0	.1	0	.1	0	.1	0	.1
0.01	0.2	0.01	0.2	0.01	0.2	0.01	0.3	0.03	0.8	0.01	0.2
0	0	0	0	0	.1	0	.1	0	0	0	0
$5.40	**100**	**$4.72**	**100**	**$3.97**	**100**	**$3.23**	**100**	**$3.33**	**100**	**$2.94**	**100**

Note: Because of rounding, individual percentages in a column do not always equal 100 percent and cost components do not always equal totals.

Source: GAO analysis of Air Force center data.

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Comments From the Department of Defense

ASSISTANT SECRETARY OF DEFENSE
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FORCE MANAGEMENT POLICY

SEP 16 1999

Ms. Cynthia M. Fagnoni
Director, Education, Workforce,
and Income Security Issues
Health, Education, and Human Services Division
U.S. General Accounting Office
Washington, D.C. 20548

Dear Ms. Fagnoni:

This is the Department of Defense (DoD) response to the General Accounting Office (GAO) draft report "CHILD CARE: How Do Military and Civilian Center Costs Compare?," dated August 19, 1999 (GAO Code 116016/OSD Case 1882). The Department appreciates the opportunity to comment on the draft report.

We are very proud of our Military Child Development System and believe it has a direct impact on the effectiveness and readiness of the force. Deemed a model for the nation, our programs have come a long way with the support of crucial legislation designed to ensure we provide care that our Service members and their families can depend on. This report validates that DoD provides quality, affordable child care at a comparable cost to civilian centers. Specifically, the study revealed that the DoD program cost was a minimal seven percent more per child hour than the cost in civilian centers.

While we generally agree with the report's conclusions, we are concerned with the impact of using inconsistent data when comparing certain aspects of the DoD program with the civilian centers. For example, when determining the number of children served, the civilian center data was based on daily attendance while the DoD data reflects per hour attendance figures. It appears that, since there was not similar data available, the DoD cost was slightly inflated in relationship to the civilian data. Further, the report states that GAO selected a civilian sample of high quality centers from the "Cost, Quality, and Child Outcomes in Child Care Centers" study of April 1995 based on the centers that scored 4.5 or higher. In the April 1995 study, however, a score of 4.5 - 5.0 was considered "mediocre." This comparison between high quality DoD centers and lower

quality civilian centers may explain the minor cost differential reflected in the study.

The report cites several variables in the DoD child development program that contribute to the slightly higher costs. For example, the report points out that DoD caregivers receive, on average, $1.04 more per hour than civilian centers. The DoD pays these higher wages so we can maintain a qualified, stable workforce with minimal turnover. One measure of DoD's commitment to quality child care is national accreditation. To date, 89 percent of DoD child development centers have achieved national accreditation, with the goal of 100 percent, compared to a seven percent accreditation rate in the civilian sector. Finally, approximately 48 percent of the DoD program is comprised of infants and toddlers, the most expensive type of care to provide since more staff are required when caring for younger children. In contrast, the study shows that civilian centers care for an estimated 15 percent of children under the age of three.

While the study focused primarily on DoD's child development centers, it should be noted that we view our program as a system of care comprised of three components: centers, family child care and school-age care. Thus, if the total system had been studied, the overall cost per child hour, in our opinion, would have been substantially less.

Additional technical comments have been provided directly to the GAO staff for incorporation into the report.

The DoD strongly supports the elements required to provide a quality child development program. We believe our child development system is high quality, affordable and cost effective.

Sincerely,

Francis M. Rush, Jr.
Principal Deputy

GAO Contacts and Staff Acknowledgments

GAO Contacts

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Staff Acknowledgments

In addition to those named above, the following individuals made important contributions to this report: Elizabeth Morrison was responsible for determining the Air Force cost estimates and analyzing DOD's child development program; James Wright provided guidance on study design, measurement, and data analysis; John Smale, Jr., provided survey and data analysis support; Joan Vogel created the data files and provided the computer programming for estimating the Air Force and civilian costs; and Janet Mascia and Alicia Cackley provided technical guidance on child care quality and cost measurement issues.

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